

Little Stillwater Creek: Hwy 51

SE SE SE

Section 14-19N-3E

Payne County

N 36.11693

W 96.94492

WBID#: OK620900-04-0050M

Blue Thumb Volunteer Monitoring Data Interpretation - February 27, 2012

Written by Jessica Lilienthal

### **Description of Watershed and Monitoring Site**

The headwaters of Little Stillwater Creek are about 6 miles northeast of the City of Stillwater, OK. Little Stillwater Creek is approximately 12 miles long, running from north to south where it empties into Stillwater Creek. The monitoring site is where the creek passes under state highway 51. Little Stillwater Creek drains about 13 square miles of agriculture, pasture land with some small farm homes to this monitoring point. Little Stillwater Creek is in the Central Great Plains ecoregion.

### **Stream Condition and Habitat Overview**

The habitat assessment at Little Stillwater Creek on 6/30/2009 scored higher than the average of high quality creeks in the Central Great Plains ecoregion. There is excellent tree canopy shading to keep the water a little cooler in the hot summer. The creek has a nice variety of deep pools and shallow areas where the water breaks over the rocks. Along the edge of the creek there is a nice mixture of grasses, trees and shrubs for aquatic life to use as habitat or food. There is some woody debris and aquatic plants within the creek to help with aquatic habitat but not much. There is evidence of some bank erosion going on as point bars have formed. This means that the bank vegetation is a little bit low. The bottom of Little Stillwater Creek is pretty sandy with some clay and this makes the creek bottom unstable for fish and creek bugs to spawn. There is not that many rocky riffles but that could just be due to the natural soil type for this area. The flow is slow and the creek runs in a pretty straight path.

### **Biological Conditions**

#### **Fish**

A fish collection was conducted on Little Stillwater Creek 6/30/2009. Using the average of high quality reference streams in the Central Great Plains ecoregion as a benchmark, Little Stillwater Creek scored an 83%. There were 20 different species of fish found which was better than the reference conditions. One less specie of sensitive benthic fish (darter, madtom) was found in Little Stillwater than the

reference. Seven species of sunfish were found indicating there is plenty of cover and that the pool quality is of adequate condition. There was a very low population of minnows, and along with the one less species of sensitive benthic fish is what brought down the fish score for Little Stillwater Creek.

### **Benthic Macroinvertebrates (bugs)**

Benthic Macroinvertebrates have been collected from Little Stillwater Creek in the summer and winter of 2009. The summer collection had 25 different types of invertebrates found and the winter had 25. Both collections had a larger number of invertebrate types than the reference conditions. There was also more types of sensitive to pollution/sediment bugs found in both collections at Little Stillwater than in the reference conditions. Although there were more species present, the abundance of some species was low, while other common and tolerant insects composed most of the population collected. As the water quality decreases, so does the evenness of the population across its species which shows concern for Little Stillwater Creek. Overall, the benthic macroinvertebrate collections in 2009 for Little Stillwater are of excellent quality.

### **Chemical Condition**

There have been four chemical testing episodes performed at Little Stillwater Creek; monthly from 12/14/2008 to 3/15/2009.

**Dissolved Oxygen:** All the readings for percent oxygen saturation were in the normal range (80%-130%).

**pH:** The pH ranged between 8.00 - 8.50, all of the data is within normal values.

**Nitrate:** All the readings were below detectable levels of the test.

**Ammonia:** All the readings were below detectable levels of the test.

**Phosphorus:** Two of the readings were below detectable levels and the other two readings were within the normal range (below 0.05mg/L P).

**Chloride:** The chloride readings ranged from 25-35mg/L Cl, very normal for this area.

### **Synopsis**

Little Stillwater Creeks is a few miles east of the City of Stillwater and drains runoff water from agriculture and rural communities. This creek has an excellent habitat even though it has signs of some bank erosion and an unstable creek bottom. The fish collection shows that the stream is healthy, but the population is missing some minnows and a pollution sensitive species or two. Benthic macroinvertebrate collections from 2009 are of excellent quality, with the winter collection scoring better than reference conditions. More chemical testing would need to be conducted on this creek to further say what is going on with Little Stillwater Creek and why the fish collection was a little lacking. Overall this creek seems like a wonderful creek to have in the Central Great Plains ecoregion of central Oklahoma.